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## A RECONNAISSANCE TRIP IN WESTERN TEXAS

By CHARLES PEABODY

THE counties of Texas west of the Pecos river all contain mountains: they are found in the southwestern parts of Reeves, Pecos, and Terrell counties, and widely distributed throughout El Paso, Jeff Davis, Presidio, and Brewster counties, the area being about thirty thousand square miles. From the point of view of science, business, or pleasure, the region is little known, and it is largely on that account that Mrs Peabody and myself selected it for a fortnight's camping trip. The route occupied from April 6 to April 23, 1909, and as traversed equals somewhat more than three hundred miles. The course was from Pecos south-southwest through Fort Davis, Marfa, Shafter, and Presidio to Ojinaga, Mexico, thence via Alamito creek back to Marfa, and east to Alpine (see the map, fig. 48). Of the seventeen nights, thirteen were spent in the wagon, two at the hotel in Fort Davis, one in like manner at Shafter, and one in a ruined rancheria near Alamito as a refuge from a dust-storm.

For the sake of other explorers the equipment may be described. On the suggestion of Dr Edgar L. Hewett, Director of American Archæology under the Archæological Institute of America, a Studebaker four-spring mountain wagon (type 141-N) was procured, and by his kind supervision certain alterations were effected, viz.: the dasher removed and the front seat moved forward to the end of the body, a "foot-board front" put on, the other seats removed, a mess-box attached under the back end of the body, dropping four inches below the axle, with a door hinged at the bottom to remain level when open. Resting on the supports of the cover a wire mattress was inserted, lying about four inches above the level of the side-boards.

On and in the wagon were stored and carried provisions, a somewhat scanty outfit of dishes and utensils, a camera, a steamer trunk, traveling-bags, blankets, quilts, a five-gallon keg of water, the

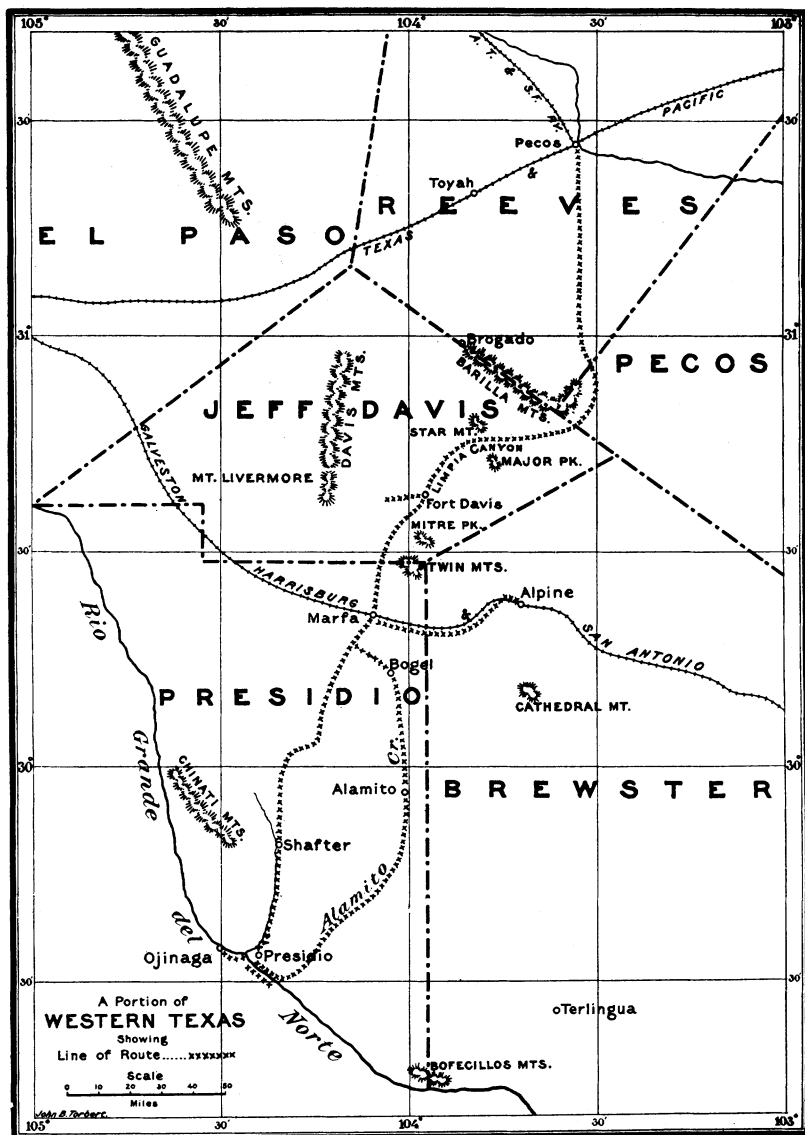


FIG. 48.

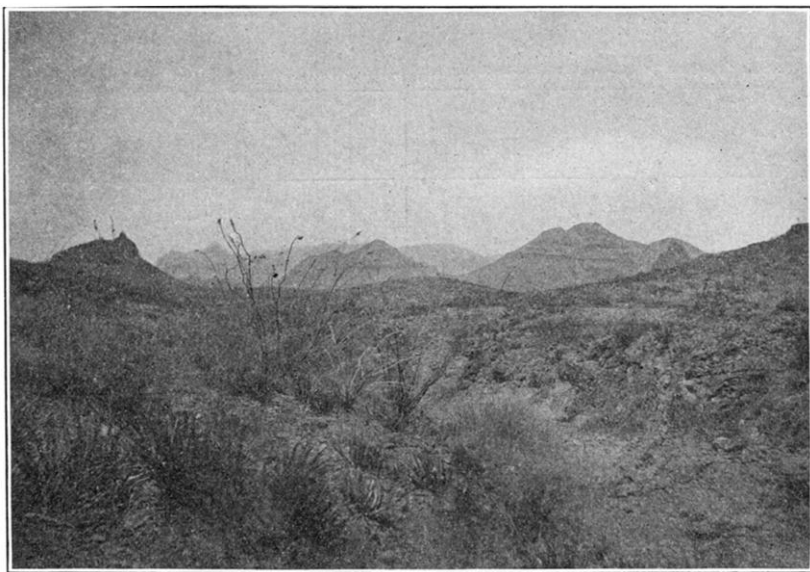


FIG. 49. — View near Shafter, Texas.

driver's kit, and feed up to a hundred and fifty pounds for the stock. There was also room for one or more of the party to lie down. Two mules for pulling were generally sufficient, with one horse for riding purposes; these were furnished by Wellington Glaze of Pecos, who drove throughout the journey, attended to the animals, laid the fires, and made himself entirely useful. The cooking was done by Mrs Peabody.

In the sandy roads of the Alamito arroyo two extra mules were found necessary; as a rule a single pair is sufficient. A lighter wagon (i. e. less than one thousand and fifty pounds) would have been better, and as ours was "narrow tread" (four feet six inches), pulling was vastly harder and riding more uncomfortable. The tread standard to a region should be ascertained before laying down a wagon.

It is perhaps well to emphasize these points, for this method of camping is altogether the best for a region like western Texas.

Owing to the aridity, a large minimum of supplies, water, and fodder must be carried, hence the camping paraphernalia should be reduced as much as possible; if tents are taken, more animals are

required, with more men and provisions. Besides, the nature of the soil and the lack of wood make tent-pitching difficult. Men can easily travel and sleep on the ground, but with women shelter is necessary; if any transportation of instruments or specimens is contemplated, a wagon is indispensable. The roads are, upon the American standard, good, so that fairly heavy loads can be drawn.

The region traversed is a plateau with mountains rising from it, isolated, in groups, or in ranges. The altitude varies from 2500 feet near Pecos to 5000 feet at Fort Davis; the highest of the mountains are from 8000 to 9000 feet in altitude.

In common with much Cordilleran scenery the altitude of the observer detracts from that of the peaks, but the boldness of outline, the sternness of color, and the massing of composition give the impression of great strength, sometimes even of sublimity. The "mesa" type is present, but not by any means universal, and views of Alpine outline are abundant (see figs. 49-51).

The valleys are broad and very long; in some instances the mountains are visible fifty miles down the valleys; the base being

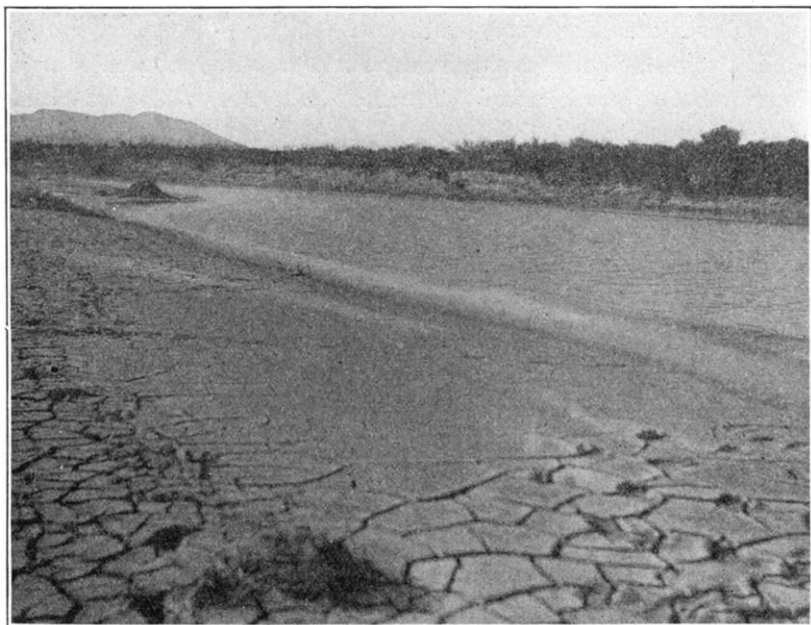


FIG. 50. — The Rio Grande, looking southeast from Presidio.

hidden by the curvature of the earth, the effect is comparable to a view at sea. The bottoms of the valleys are often absolutely flat and scarred by stony arroyos quite disproportioned to the occasional pools or insignificant streams which occupy them much of the year.

The mineral resources are undeveloped: silver is mined near Shafter, and gold has been reported; as yet the difficulties of life and transportation interfere with the growth of permanent agricultural or industrial settlements.

Climatologically, the region is semi-arid. On the more level plateau trees hardly exist; thin woods may be found on the mountain slopes in isolated localities, but as a whole the vegetation is confined to sparse grass, mesquite bushes, greasewood, various thorny shrubs, and many species of cactus. Meteorological observations have been kept at Pecos and Fort Stockton, and continuously at Fort Davis (5000 feet). The record at Fort Davis for 1905 is: maximum temperature,  $96^{\circ}$ ; minimum temperature,  $3^{\circ}$ ; annual average,  $58.4^{\circ}$ ; departure of annual average from normal,  $-2.4^{\circ}$ . Precipitation, 23.13 inches; departure from normal,  $+9.10$ ; snowfall, 6.5 inches; prevailing wind, southwest.

The rainfall occurs mostly in the summer, and ten months may elapse without precipitation. The lack of water is the economic problem; water can be found by drilling wells, and it may be preserved in "tanks." True springs are rare. In the mountains the larger streams are permanent, but in the more level parts such a stream as Alamito creek, with a length of eighty miles, becomes a series of widely separated pools.

During our trip the average of cloudiness was rather high; cloudless days were rare; cumulus clouds formed frequently during the afternoon and stratus in the west, but the former generally soon disappeared. Absolutely no dew was observed. The temperature is strictly continental, with large daily ranges and violent changes. The spring of 1909 was particularly windy, and next to the aridity the wind is the controlling feature of camp-life.

We experienced three "northers," all of which sprang up about midnight after an evening of exceptional calm and beauty. The drop in temperature incident to the first (April 8) at the base of the

Barilla mountains was  $40^{\circ}$  in fifteen hours; of this perhaps  $25^{\circ}$  occurred between midnight and four o'clock in the morning. Complete cloudiness and a tentative mist accompanied the first (the only precipitation during the trip), the second was absolutely cloudless, and the third presented a mixed condition.

The wind velocity may be estimated at from 18 to 50 miles an hour; the wind was almost abnormally gusty, considering the open

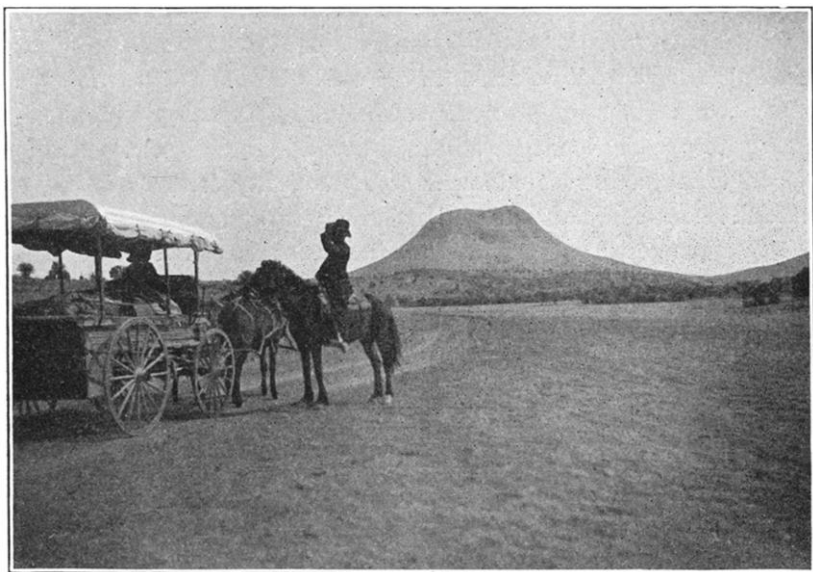


FIG. 51. — View near Alpine, Texas.

country, and came from the north, northwest, and east-northeast respectively in the three storms. The second storm (Fort Davis, April 12) was accompanied with dust. A typical hot dust-storm took place April 20, overtaking us in the Alamito valley. The wind was southwest and more constant than the "northers," the air became filled with dust both palpable and impalpable, and the sky and mountains were obscured to about the degree that arises from a summer eastern haze on the Atlantic coast.

Camping in the open during these storms is attended with great discomfort.

The interesting and sometimes beautiful phenomenon of "sand-

spouts" was frequent on hot, still days. Several of the pillars, apparently almost motionless, could be seen at once; they are of course characteristic of all hot deserts.

It is commonly asserted that sensible temperatures differ according to humidity; that is, heat feels hotter on a muggy day, and an eastern cold wave is more severe than a lower temperature on a western prairie; this was not the experience of the writer as to either heat or cold accompanied by the excessively low humidity. Possibly this was owing to the suddenness of the change to the outdoor life, to the high wind velocities in the cold periods, and the absence of wind during the hot—or, more likely, to personal qualities, propensity to perspiration, type and thickness of clothing, etc. This is worth noting, as sensible temperature practically controls industry and life in extreme latitudes and altitudes; many factors other than absolute temperature, pressure, and humidity are to be considered, especially in connection with the availability of certain places as health-resorts.

Fort Davis, with a comparatively small annual range of temperature, is beneficial in cases of tuberculosis and well-regulated sanatoriums are desirable. The region traversed is almost exclusively devoted to grazing; horses, mules, cattle, and goats find a somewhat meager livelihood; the poisonous and insidious "loco" (*Astragalus mollissimus*, etc.) kills many and the treacherous mud banks catch others alive; the desiccated bodies and skeletons of these beasts are of frequent occurrence. There are a few antelope and panthers, and in the Chinati mountains can be found fair hunting. Near Marfa, especially, along the line of the Southern Pacific Railway, crows are found in surprising numbers; their habits at roosting-time and their disputes over places on the telegraph wires are instructive and diverting.

Insects in April are practically absent; save for the Rio Grande valley there are no flies, and of fleas, mosquitoes, and noxious bugs not a trace; snakes are not seen at this season.

The district is rich in paleontology, particularly of the upper Cretaceous; in an hour's search the following were collected in a bank on a mesa near the Barilla mountains:<sup>1</sup> *Turritella vertebrator-*

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<sup>1</sup> The identifications were very kindly made by Professor Robert T. Jackson of Harvard University.



*des*, *Holaster simplex*, *Anomia*, *Gryphæa pitcheri*, *Ostræa larva*, *Neithea texana*, sea urchin. Other species, vertebrate and invertebrate, can be readily found.<sup>1</sup>

The geology is varied, the rocks ranging from sedimentary Carboniferous and Cretaceous to igneous of later epoch. The sedimentary limestone is somewhat monotonous, but the igneous basaltic formations in the Davis mountains are of great interest; of a striking reddish brown color the columnar cliffs of Limpia cañon surpass the Siebengebirge and the Giant's Causeway in tone, though not in size and perfection. Caves of all kinds are numerous, both under level valleys and in perpendicular cliffs; rock-shelters occur wherever an eroded rim or scarp gives opportunity.

Near a spring about six miles north of Shafter, on the road to Marfa, is a deposit of igneous material resembling cinders and lava; the absence of any obvious crater here is striking.

Of the archeology of the trans-Pecos territory little is known, and with one exception no extended scientific exploration has been attempted.

Pueblo Indians do not seem to have occupied it; the inhospitable character of the land does not invite to permanent settlement; tribes, however, passing through on errands of migration, or hunting, or by reason of their warfare with Americans or Mexicans or with other Indians, have left traces at their stopping places.

These may with some certainty be referred to the Apache (Athapascan) and probably later to the Comanche (Shoshonean); these tribes as allies made trouble for the white settlers during the last century. The entire district is included in the overlapping Apache and Comanche-Kiowa claims.<sup>2</sup>

The remains observed or reported may be classified under work-sites and caves.

Work-sites, identified by chips of flint and other stones, may be found almost anywhere. They are more abundant along the water-

<sup>1</sup> Cf. R. T. Hill, Geological Survey of Texas, Bulletin 4, 1889, p. vii. E. D. Cope, Preliminary Report on the Vertebrate Paleontology of the Llano Estacado, Austin, 1893. F. W. Cragin, Invertebrate Paleontology of the Texas Cretaceous, Austin, 1893.

<sup>2</sup> Cf. C. C. Royce, Indian Land Cessions of the U. S., 18th Rep. Bureau of Ethnology, 1896-97, part 2, pl. clxiv, nos. 688 and 478.

courses, near springs and rock-shelters, and on commanding hill-tops. On the theory that the population was migratory, this is to be expected. Thus, near the Darter ranch, 40 miles south of Pecos, near the southern entrance into the Barilla mountains, quantities of chippings may be observed along the low bank of the broad arroyo. They were particularly localized near a ruined hearth or chimney (itself possibly not of Indian origin). This in turn is dominated by a rock-shelter with pictographs near the summit of a mesa 200 or 300 feet high.

As one retires from the banks, the flints become less numerous. Again, along the sides of a stream flowing from springs on the southern slope of the Barillas there are evidences of work; here the fragments are smaller and the chipping is much more delicate than elsewhere; a minute scraper, three-quarters of an inch in length, was taken by Mrs Peabody from the muddy bottom of the spring itself. Its occurrence there is probably accidental; the springs vary so much from month to month in number, position, and size that it is hardly conceivable that the Indians should endow any special one with particular ceremonial virtue.

For part of the distance near the McCutchin ranch, in the open valley between the Barillas and the outliers of Major peak, "road specimens" were good, but higher up in Limpia cañon proper there were none observed; yet here there is running water. Near Fort Davis much material can be picked up near Carpenter mountain, 11 miles to the west near the Merrill ranch; specimens were also reported from near the Camp-meeting Ground, 20 miles west on the road to Valentine.

South of Marfa, on the road over the hills to Shafter and thence to Presidio, specimens were extremely rare, as they were also near the Rio Grande on both sides. A walk of some hours on the Chihuahua side, east of Ojinaga, revealed but one doubtful "reject" and a threshing floor with sherds of primitive but modern pottery. The hills of Presidio county do not surprise one by this paucity of material, for the Shafter neighborhood is the most barren of all, and the country rough and broken. But why specimens should not be found along the Rio Grande beyond the flood limits is hard to explain.

Turning north, following up the valley of Alamito creek, traces again become evident.

At the Lopez ranch, about six miles from the Rio Grande, on a hill back of the house is a site commanding a superb expanse of country to the south. Here are many flints, rather rudely chipped, and two circles of piles of loose stones, many of which bear traces of fire. A small Mexican boy of the ranch pointed out another site on an eminence at a distance.

From there for 20 miles (nearly to Alamito) evidences of work are continuous, and almost every hilltop and ridge can be counted on to furnish specimens.

Thus it appears that the Indians' journeys and stopping-places can almost be mapped by their work-sites, following as they do the lines of least resistance and collected about those places which provide water, shelter, and control of an enemy's movements.

A feature of many sites is the circles of stones, sometimes more or less piled up, sometimes lying flat. There is such an abundance of natural stones that it is sometimes difficult to judge whether the arrangement is accidental or not. Several theories are locally current as to their origin, viz., that they are the remains of small defensive towers behind which, in lieu of trees, the Indians should hide; another explains the presence of several piles together as indicating the number of warriors in a party, and the informant further added that it was a custom to lay a stone or stones pointing from the circle in the direction of departure. Such a condition may have obtained at the Lopez ranch where two circles of such piles are observed. Again it is suggested that the pyramids or cones of stones were built with a slant in the direction of water.

All these are possible explanations; it is highly likely, however, that many are simply hearths; this is strengthened by the appearance of burning presented by many stones and by the widespread Indian custom of preparing such hearths.<sup>1</sup>

One is impressed, while riding, by the occasional alignments of equidistant stones along the road; these are also referred to water-

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<sup>1</sup> Mr C. C. Willoughby of the Peabody Museum, Cambridge, has in his collection several interesting photographs of such circular hearths excavated near Concord, Massachusetts.

directions ; it may be, on the other hand, that they were set up recently during the progress of one of the topographical surveys.

At an extensive work-site three miles north of the Lopez ranch there lay on an open flat rock sixty-one crystals of calcite ; such a cache, if cache it can be called, of decorative, non-utilizable material, is to the writer unique. Its interest is not lessened by the fact that the edges and faces of the crystals present so perfect a surface as,

in the opinion of Professor Charles Palache of Harvard University, to preclude an exposure to sun, rain, wind, or sand of more than a year.

Who brought them and whence—whither destined is unknown. It is possible that until recently they were covered by other stones, but there is no certainty in the matter.

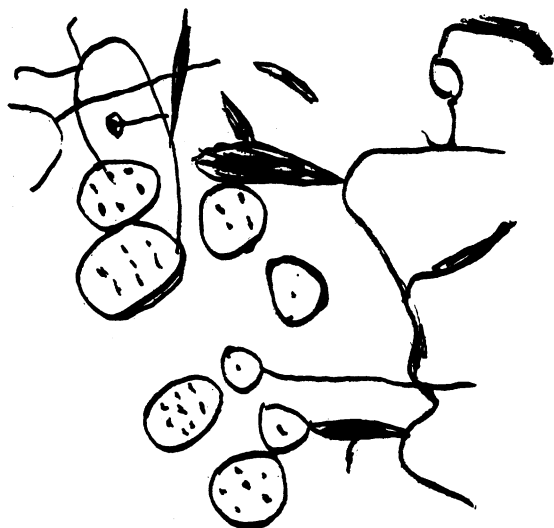


FIG. 52. — Pictograph in shelter on Square Top'mountain.

True caves were not long occupied by man, but the rock-shelters are interesting : they were visited as follows : (1) Two miles and a half northeast of the Darter ranch, at the southern end of the Barilla mountains ; it (with others) is in the "rim-rock" of Square Top mountain, about 200 feet above the plain. (2) In the "rim-rock" on the eastern side of the ridge, one quarter of a mile south of the Darter house. (3, 4) In the eastern and western base of Carpenter mountain, near Fort Davis. (5) At the base of the ridge on the western side of the valley, nine miles southeast of Shafter, on the road to Terlingua. (6) One mile east of the Bogel ranch, upper Alamito valley, 12 miles south of Marfa.

The floor deposits are not deep ; no skeletons and but few chip-

pings were found. A burial is reported from the cave at the back of the Bogel rock-shelter, and numerous others from higher up on the same ridge; these are covered with stones (a custom common to the later Indians and the Mexicans<sup>1</sup>) and contained some accompanying flints.

All these rock-shelters have been occupied, and contain pictographs of which a short description follows

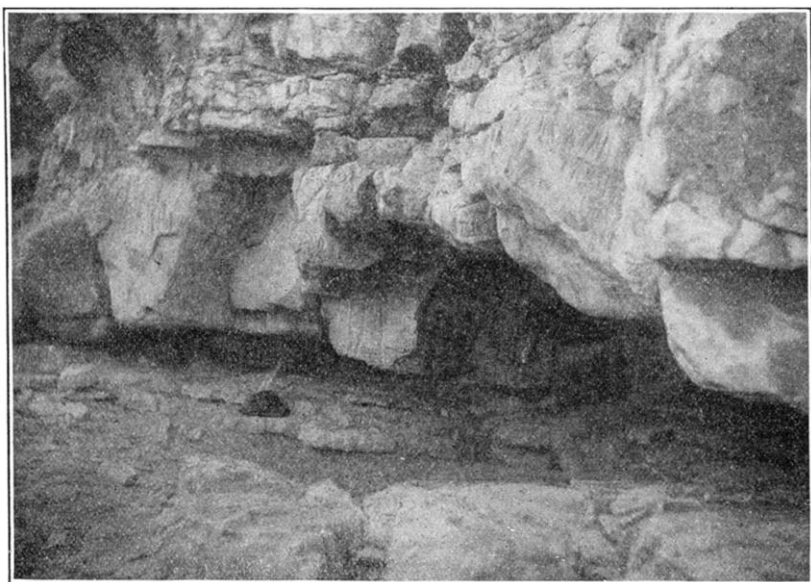


FIG. 53. — Pictographs, Darter shelter.

1. The shelter has an entrance nine feet broad and an overhang seventeen feet high; it faces west. The pictographs (on both walls) include (*a*) figures of eight broad curves and lines, half an inch wide, in red, with smaller figures between in broader black lines; (*b*) a combination of curved lines and circles with dots, in black, suggesting a grotesque cactus (fig. 52); (*c*) a row of thirteen deeply indented lines perpendicularly depending from two horizontal lines.

2. The shelter faces northeast; it rises from a height of three

<sup>1</sup> Six miles south of Alamito, at the top of a ridge near a "tank" of water, is a long pile of loose stones with a Latin cross at the eastern end forming a Mexican grave of about 1899.

feet at the entrance and is ten feet deep. The walls and roof are much blackened by smoke, which seems to be of the same age as the pictographs. These consist of innumerable grooves, sometimes parallel, sometimes crossing, and cut to a maximum depth of a third of an inch (fig. 53). They may certainly be divided into (*a*) sharpening grooves, (*b*) tally marks, (*c*) symbolic designs, (*d*) unrecognizable forms.

Under (*c*) is an interesting sun or star with a hollow center and nineteen rays; and under (*d*) a complicated figure (turtle) stippled, not cut so as to appear light on the dark rock-surface.

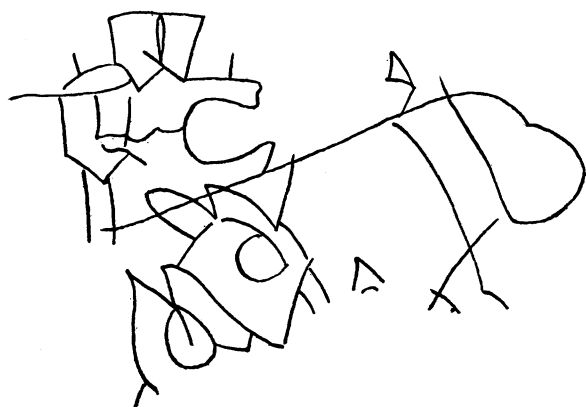


FIG. 54. — Pictograph in shelter at Mount Carpenter.

(3) The shelter faces eastward and is a natural hollow six feet high and the same in width and depth. It was originally well covered with pictographs, but as the surface is scaling away through seeping and atmospheric

influences many have disappeared. The most striking fragment is given in figure 54; the lines are brownish-red and about half an inch wide.

(4) Directly opposite, facing westward, at the base of the same mountain is a natural dolmen-shaped shelter near a work-site. The pictographs in lighter red emphasize a W motive; this is hardly significant, as so many of the adjoining lines are obliterated.

(5) The shelter faces northeastward and is black with smoke. Red pictographs in parallel and converging lines and triangles adorn it; some of them combine to form a resemblance to the modern Comanche sign for "farewell" (on the testimony of Wellington Glaze, who, as a cowboy, has had experience here). Near by is a cut or stippled human face or skull, through the upper part of which



PICTOGRAPHS, BOGEL SHELTER, TEXAS

is drawn a red line. A few paces to the south is another small shelter, and near it on the rock a figure in red of an arrow pointing upward.

(6) The shelter is large and faces westward ; it is about 100 feet long, 14 feet deep, and 14 feet high ; its pictographs are quite celebrated. They include a set of figures, human and not human, in black ; an outlined Greek cross in red ; a headless human figure, eight inches long ; many parallel lines in red ; six black marks over a small recess ; a scalp-shaped figure, in black, and (see plate x) lines in red, a rude arrow in orange, nine horned animals pointing the same way, and some modern initials.<sup>1</sup>

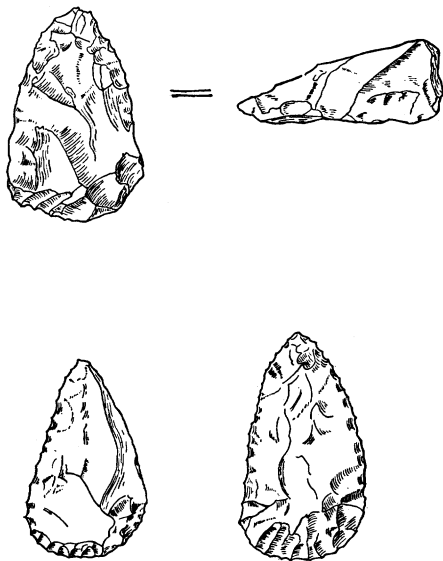


FIG. 55.—Scrapers from the Darter work-site. ( $\frac{1}{2}$ )

No archeological sketch is complete without a mention of the cache of minute points discovered on the summit of Mt Livermore, 8300 feet high and the highest of the Davis mountains. It was first noted by Mr T. A. Merrill and later thoroughly excavated by Mrs S. M. Janes of Fort Davis, in whose possession the points remain. Over and around the points was piled a mound of stone ; they number more than a thousand, finely chipped and of various forms. Both points and site are undoubtedly ceremonial. It is hoped that Mrs Janes will publish a detailed account of this discovery, which may prove unique.

<sup>1</sup> Cf. Garrick Mallery, 4th Rep. Bureau of Ethnology, especially pl. 11, x (California). W. H. Holmes, Trans. Anthrop. Soc. Washington, 11, 1882-83, p. 163. W. J. Hoffman, *Am. Anthropologist*, 1888, pp. 209-29. W. J. Hoffman, Trans. Anthrop. Soc. Washington, 11, 1882-83, pp. 136-37. L. W. Gunckel, *Am. Antiquarian*, 1893, pp. 223-29. J. Teit (ed. Boas), *Mem. Am. Mus. Nat. Hist.*, N. Y., vol 11, Anthropology 1, Apr. 1900, pls. XIX and XX.



The archeological material collected is in the main rough. The high, humped type of scraper (fig. 55) is the only complete implement found in any abundance, and nearly all are from the Darter work-site.

Fragments of points, knives, and scrapers, cores, spalls, chips, and unfinished, unsatisfactory, and rejected implements constitute most of the surface specimens.

Occasionally one finds a good (Indian) "*coup de poing*," or a flat knife. The absence of perfect specimens is accounted for by the supposition that the Indians carried away their finished products. White men's collecting has assisted as well.

The material, flint and chert of various degrees of purity and hardness, is probably native to the region.

Metates and rubbing- and hammer-stones are also very plentiful, the first sometimes very fine. In a few places grinding holes in the flat rock are to be seen.

The outlying mountain regions of El Paso and Brewster counties are reported to contain caves and burials, and a careful exploration of these would be worth while. A collation of the pictographs, which must exist in very great numbers, is also a work which it is very desirable to have done.

PEABODY MUSEUM, HARVARD UNIVERSITY,  
CAMBRIDGE, MASSACHUSETTS.